

**City of Tacoma  
Municipal Stormwater NPDES Permit**

**2003 Annual Report**

**This report provides an update of the stormwater program activities conducted by the City of Tacoma during 2003.**

**Submitted pursuant to Special Condition S10 of the National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge General Permit for discharges from municipal separate sewers for the South Puget Sound Water Quality Management Area and the portion of the Kitsap Water Quality Management Area located in Pierce County**

**Municipal Stormwater NPDES Permit Number WASM11001**



**Submitted by:  
Tacoma Public Works  
Environmental Services/Science and Engineering Division  
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Tacoma, WA 98421**

**March 31, 2004**

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### Water

*Water: majestic,  
Live-giving, creation's jewel.  
World's greatest treasure.*

## **2003 Annual Stormwater Report**

### **INTRODUCTION**

This report is being submitted by the City of Tacoma pursuant to Special Condition S10 of the National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge General Permit for discharges from Tacoma's municipal separate storm sewer system. This annual report covers the reporting period January 1, 2003, through December 31, 2003.

Tacoma received its NPDES Municipal Discharge Permit from the Washington State Department of Ecology (Ecology) in 1995. In 1999, the City's Stormwater Management Program (SWMP) was approved by Ecology as meeting the requirements of that permit. The permit was expected to expire in 2000, but was administratively extended by Ecology and has not yet been reissued.

Comments or questions regarding this annual report can be directed to Christy L. Strand, P.E., Tacoma Public Works Department, Environmental Services/Science and Engineering Division at 253-502-2105 or [cstrand@cityoftacoma.org](mailto:cstrand@cityoftacoma.org).

## **1. Status of Implementing the Components of the City's Surface Water Management Program**

This report describes the implementation of the City of Tacoma's Surface Water Management Program (SWMP) during 2003. The following reports, documents and activities were completed in 2003 as per the SWMP schedule.

- The 2002 Annual Report was submitted to Ecology.
- The new Surface Water Management Manual, which includes source control measures, was implemented on January 1, 2003.
- The revised surface water management ordinance, Chapter 12.08 of the City Code, was implemented on January 1, 2003.
- New staff people were added to the Surface Water Program during 2003 including a source control inspector, 1.5 engineers and a GPS staff person. One engineer and a water quality technician transferred to other programs.
- The first year of the City's new "Make a Splash" Educational Grant Program promoting community environmental education, protection and restoration projects was completed successfully.
- A variety of ongoing monitoring activities were done including activities related to shorelines, wetlands and creeks.
- Surface water staff led a City-wide effort to develop a phased response to the West Nile Virus.
- The City continued to implement the Regional Roads Maintenance Program for the Endangered Species Act.
- In-water cleanup work began on the Foss.
- A new volunteer creek monitoring program was implemented with the assistance of the Pierce Conservation District Stream Team.
- Business inspections increased from 106 in 2002 to 322 in 2003.
- The Plan Review staff worked on some really large projects, including the new Narrows Bridge, the addition of HOV lanes to SR 16 and I-5, the City's new Convention Center, the University of Washington – Tacoma and the rebuilding of Salishan, a public housing project with over 1000 dwelling units.

### **S7B1 Stormwater Management Program Planning Process**

Surface Water Utility staff worked with managers and staff from the Public Works Department, Community Relations and Tacoma Public Utilities to compile the information needed for this report. Public Works staff from the Science and Engineering, Wastewater Operations, Maintenance, Streets and Grounds, Construction, Solid Waste Utility and Building and Land Use Services Divisions assisted. Tacoma Public Utilities staff from Tacoma Power and Tacoma Water also provided information used in this report. Participation by elected officials and the public took place in 1995, 1996, 1999, 2000, 2001, 2002 and 2003. The City Council adopted the changes to the surface water ordinance in the fall of 2002 and the changes became effective on January 1, 2003. The City's new Surface Water Management Manual also went into effect on January 1, 2003.

A new source control inspector, 1.5 engineers and a GPS staff person were added to the Surface Water Program staff in 2003. A water quality technician and an engineer transferred to another program. The position filled by the water quality technician will be filled in 2004. It is anticipated that other staff will also be added in 2004. The City continued the use of a temporary Washington Conservation Corps crew for most of 2003. This crew was part of a program that began in November of 2001. The crew worked through the end of September 2003 when the federal funding for the program was eliminated.

Tacoma's Surface Water Utility, along with the Solid Waste Utility and the Wastewater Utility, has a customer advisory panel. This panel is called the Environmental Services Customer Advisory Panel (ESCAP) and has been providing citizen oversight of the Surface Water and other utilities for approximately ten years, since their establishment by the City Council. Panel membership reflects the various user groups of the utilities. Members are recruited from the single- and multi-family residential, government, commercial and industrial sectors. Currently, all three panels meet concurrently, generally once each month, to receive presentations on various utility programs. ESCAP responsibilities include providing oversight into the user rates revision process, reviewing and critiquing major project proposals, administrative policy changes or additions, as well as proposing new customer service programs and policies resulting from their own brainstorming efforts, and presenting ideas and requests gathered from their own constituent groups.

During 2003, the Surface Water Advisory Panel received presentations on the Septic System Amnesty Program, the "Make a Splash" Grant Program, the West Nile Virus, the Business Systems Improvement Project (BSIP), the Foss Waterway Superfund Cleanup Project and many other topics related to Solid Waste and Wastewater.

The City implemented a new 50 million dollar computer system in late 2003. This system replaces the various computer systems that the City had been using. The new system is used not only for fiscal and personnel programs, but also for all data management City-wide. Some of the new systems are still being refined. The Surface Water Management staff spent additional time training to become familiar with the use of the new system.

## **S7B2 Water Quality Problems, Needs and Priorities**

### **ANALYSIS OF NEEDS AND PRIORITIES**

The City's analysis of needs and priorities was included in the SWMP that Ecology approved. The SWMP includes a prioritized list of all of the City's unmet stormwater needs. The bulleted items on the first page of this report highlight many of the unmet needs that were addressed in 2003.

## **S7B3 Legal Authority**

### **ADOPTION AND ENFORCEMENT OF ORDINANCE CONTAINING STANDARDS EQUIVALENT TO THE MINIMUM REQUIREMENTS OF ECOLOGY'S STORMWATER MANAGEMENT MANUAL**

Changes to the City's drainage ordinance, Chapter 12.08 of the City Code, became effective on January 1, 2003. The major changes include the addition of the minimum requirements from the new Surface Water Management Manual, the authority to inspect private businesses and the ability to require maintenance of private stormwater best management practices (BMPs). It also authorized the Public Works Director to implement the new Surface Water Management Manual. A draft Enforcement Response Plan has also been prepared and is being reviewed by management. It will be finalized in 2004.

### **ADOPTION AND ENFORCEMENT OF ORDINANCE PROHIBITING POLLUTION DISCHARGES TO THE CITY'S MUNICIPAL STORMWATER SYSTEM**

The City's old ordinance prohibited the discharge of pollutants to the City's stormwater system. The newly revised ordinance does also.

## **S7B4 Monitoring**

Please refer to Section S12 Thea Foss Waterway Basin Program for additional information on monitoring activities in the Foss Basin.

The City continues to work cooperatively with the Washington State Department of Transportation (WSDOT) in a study of structural stormwater controls. WSDOT has completed construction of the testing facility in Seattle. Due to a lack of funding, only one treatment technology was tested during the first year. It is intended that the technology will remain in place for approximately one year, and that samples will be taken during storm events occurring during the course of that year (up to six events). A Stormwater Management StormFilter was being tested in 2003/2004.

In September 2003, the City of Tacoma was awarded a \$500,000 Transportation Community and System Preservation Project (TCSP) Grant from the Federal Highway Administration and has proposed to continue to fund the project with this money. During November and December 2003, the City worked with WSDOT and Seattle Public Utilities to draft a new Interagency Agreement with WSDOT to use the WSDOT facility and continue the sampling project. Three stormwater treatment vault technologies may be tested including the StormFilter, an AquaShield – AquaFilter and a Jenson Precast – StormVault. The project will include monitoring 15 storms for the first two technologies and five storms for the third technology. The project will end in August 2006.

Following the completion of the testing period, the City will evaluate the effectiveness and applicability and reasonableness for use of these technologies within the Thea Foss Basin. "Reasonableness" shall take into consideration effectiveness, maintenance requirements, flood control, and cost in comparison to the effectiveness achieved to date in the Thea Foss Basin as a result of the current source control program.



City Laboratory Staff Person

The City developed a proposal for its future creek program activities and it was submitted to and approved by Ecology. The proposal includes three different activity areas. First, a community education and involvement program will be implemented in the Western Slopes area where houses are located next to or in close proximity to Crystal Creek, Crystal Springs Creek and Titlow Park Gulch Creek. We will share information with the residents about what they can do to help protect the creeks that they live by. Second, ten gulch systems initially visited in 2000, will be revisited during the 2003/2004 rainy season with a focus on monitoring water quality parameters and documenting areas with erosion. The sites will also be logged with our GPS system. The last area will involve establishing permanent monitoring sites on six of our larger and/or more significant creeks. The sites will be logged with our GPS system, and will be monitored over time by volunteers in our Stream Team Program.

The City contracted with an environmental group, Citizens for a Healthy Bay (CHB), for environmental hotline services. CHB's hotline number (253-383-2429) was operational throughout 2003. Thirty-nine calls were received in 2003. As in 2002, most of the calls were related to petroleum products, paint and soap/detergent/foam. Twenty-seven of the calls addressed problems in the Foss Waterway and almost all of the calls received were from citizens. Twenty-nine of the calls were referred to the City and five were referred to Ecology.

City staff monitor the shorelines along Commencement Bay and the Narrows monthly using a City-owned boat. The monitoring is done at low tide to the extent practicable, and portions of the shoreline are videotaped. Any identified problems are addressed. If problems are detected during a patrol, an Incident Report Form is filled out that documents the incident and the follow-up action or referral. The type of incidents that the boat patrol monitored during 2003 includes: suspicious stormwater discharges, sheens on the water, construction activity along the shoreline, and waterfront businesses' compliance with appropriate best management practices (BMPs). Dredging activities, derelict vessels and in-water cleanups are monitored too. The benefit of these patrols comes not only from correcting identified problems, but they also raise the awareness of businesses and the general public about proper operations near the water. Copies of the videotapes and the Incident Report Forms are available upon request.



The City's Boat

Citizens for a Healthy Bay, a local environmental group, sponsor a Bay Keeper Program. The person hired as the bay keeper has a boat and patrols the City's many miles of shoreline. The City provided \$10,000 in financial support for this program in 2003, and coordinates its efforts with those of this environmental group. The following information summarizes Citizens for a Healthy Bay's accomplishments in various monitoring related programs designed to help protect water quality in Commencement Bay.

- On the water patrols – 29
- Patrol hours – 68
- Kayak patrols – 39
- Kayak volunteers – 92
- Walking patrols – 64
- Citizen reports – 39

The City of Tacoma provides \$25,000 on a yearly basis to help sponsor the Pierce Conservation District Stream Team. The Stream Team has many volunteers that do important, but limited, stream monitoring in several streams including Swan Creek, Puget Creek, and Hylebos Creek. They monitor for pH, temperature, and other basic parameters. Meetings were held between Stream Team and City personnel to focus the program and to identify new monitoring sites.

At the end of 2003, the Tahoma Salt Marsh Restoration Project was nearly complete. A community planting day is scheduled for March 2004 when over 8,000 plants will be planted on-site. The monitoring plan will be implemented after the planting is complete. This site was one of five to be completed under our consent decree for the Natural Resource Damages Assessment (NRDA) Program. Three of the five NRDA sites have been completed to-date, with the fourth to be completed in early 2004. The Middle Waterway site, completed in 2000, and the Swan Creek site, completed in 2001, are monitored annually. The Olympic View site, completed in 2002, is monitored biannually. The remaining site is the Hylebos Marsh Project near the Hylebos Waterway between Taylor Way and Alexander Way, south of East 11<sup>th</sup> Street.

Developers are required to monitor wetlands in areas where wetlands could be impacted by their development. They are required to submit annual reports for monitoring for three to five years. These are summary reports. Wetland monitoring is site-specific. For example, some permits require sampling for fish many times during one season. Approximately one third of the City's wetlands specialist's time was spent on wetland monitoring activities in 2003, with most of the rest of the time being devoted to a rewrite of the City's Critical Areas Preservation Ordinance. These monitoring activities include review of monitoring reports submitted as part of the permit approval process, tracking violations, monitoring shorelines, and field visits. The wetlands specialist made



approximately 82 field inspections in 2003 to check monitoring reports look at violations, and for issuance of permits. Twelve wetland permits were issued and nine enforcement actions were taken.

There is an official weather station at the Central Wastewater Treatment Plant and four rain gauges located throughout the City. Rainfall data has been recorded since 1953. The rain gauge information is recorded and used as needed. Currently, the City is considering updating these instruments. The City contracts with a weather service and receives weather reports twice a day. This information provides an early warning of heavy rains and potential flooding. Maintenance crews are dispatched to proactively check and maintain trouble spots prior to anticipated heavy rains, to ensure the proper operation of the system.

#### **STORM SEWER MONITORING IN COMMERCIAL/INDUSTRIAL AREAS**

Please refer to Section S12 Thea Foss Waterway Basin Program for additional information about monitoring in commercial and industrial areas.

#### **S7B5 Fiscal Analysis**

The operation and maintenance of the Surface Water Utility is funded from service charges. No revenue is derived from taxes from the City's general fund. Major capital improvements are funded from revenue bonds and pay-as-you-go financing. The service charges are reviewed annually to insure that they are adequate to pay operation and maintenance costs, debt service, capital improvements and taxes. All changes to the rates must be approved by the City Council

#### **SURFACE WATER UTILITY**

During the reporting period of January 1, 2003, through December 31, 2003, the Surface Water Utility spent \$31.1 million. The expenditure categories are as follows:

##### **OPERATIONS:**

###### **Transmission**

Personal Services	\$ 716,909.87
Supplies & Other Services and Charges	\$ 372,776.58
Miscellaneous Capital Outlay	\$ 0
<b>Total</b>	<b>\$ 1,089,686.45</b>

###### **Pumping**

Personal Services	\$ 49,722.32
Supplies & Other Services and Charges	\$ 113,511.69
Miscellaneous Capital Outlay	\$ 0
<b>Total</b>	<b>\$ 163,234.01</b>

###### **Holding Basins**

Personal Services	\$ 74,714.40
Supplies & Other Services and Charges	\$ 212,219.49
Miscellaneous	\$ 0
<b>Total</b>	<b>\$ 286,933.89</b>

**Engineering**

Personal Services	\$ 523,634.79
Supplies & Other Services and Charges	\$ 114,704.49
Miscellaneous Capital Outlay	\$ <u>0</u>
<b>Total</b>	<b>\$ 638,339.28</b>

**Source Control**

Personal Services	\$ 1,171,946.72
Supplies & Other Services and Charges	\$ 9,558,425.97
Miscellaneous Capital Outlay	\$ <u>1,975.66</u>
<b>Total</b>	<b>\$10,732,348.35</b>

**Laboratory**

Personal Services	\$ 318,393.07
Supplies & Other Services and Charges	\$ 71,961.04
Miscellaneous Capital Outlay	\$ <u>0</u>
<b>Total</b>	<b>\$ 390,354.11</b>

**MISCELLANEOUS:****General Services**

Personal Services	\$ 643,712.72
Supplies & Other Services and Charges	\$ 1,826,229.01
Miscellaneous Capital Outlay	\$ 0
Depreciation	\$ <u>1,416,363.79</u>
<b>Total</b>	<b>\$ 3,886,305.52</b>

**Debt Service**

Principal and Interest	\$ 3,068,907.23
Other	\$ <u>0</u>
<b>Total</b>	<b>\$ 3,068,907.23</b>

**Other Department Divisions not included above:****Miscellaneous:**

Unknown at this time

**Capital Projects:**

Foss Waterway Cleanup	\$ 9,514,393.81*
NRDA	\$ 526,495.80
Misc. Superfund	\$ 28,599.77
Miscellaneous	\$ <u>795,304.22</u>
<b>Total</b>	<b>\$10,864,793.60</b>

**Grand Total** **\$31,120,902.44**

\*Note: This does not include the recorded liability of \$34,616,530.00

A description of the types of activities associated with the above expenditures is contained in the City's Comprehensive Stormwater Management Program. Relating the budget amount in each of the above categories to the actual expenditures is very difficult at this time. Some activities are budgeted in one activity or organization, but are actually spent and therefore charged to a different activity or organization. As a result, the actual expenditure in any one line item does not necessarily relate to the budget number for that same category. Some capital expenditures may be budgeted in the operating budget but the expenditure is taken from the capital budget and vice versa.

The expected revenue from rates in 2003 is \$28.6 million. The anticipated expenditures for the year 2003 will likely be about the same as for the year 2002. This is due to increasing activities in the Surface Water Utility. There will be increased emphasis on source control and public education. In addition, there are numerous planning, design and construction activities funded by the utility. Some of these are to comply with federal and/or state orders, consent decrees, mandates, etc.

### **S7B6 Data Management**

#### **DEVELOPMENT OF LAND COVER INFORMATION MAPS AND DATA**

A first draft of the stormwater Geographical Information System (GIS) mapping system has been constructed. It is currently being corrected and updated, but it is not fully field checked. The City currently has two full-time staff persons updating and correcting the system using recorded drawings, global positioning system (GPS) points and field inspections. Currently, 36 of the 64 sections in the City have been completed and the project is scheduled to complete the remaining sections by mid 2005. The City has completed updating all catch basins in the City's rights-of-way with the data collected from a GPS project completed in 2003. The second phase of the catch basin collection project, which will be to collect data for catch basins outside the City right-of-way, is currently being planned to commence in the summer or fall of 2004. The work management data and critical information of the stormwater GIS system has been updated in the City's new Enterprise Resource Planning (ERP) tool known as SAP, where the data and information will be maintained and updated. The entire City map of wetlands was completed in 2000 and is currently being updated. The collection of maps in the City-wide GIS is now available to both internal and external customers via the City's Public Works' GovMe website.

#### **WATER QUALITY COMPLAINT INVESTIGATIONS AND DATABASE DEVELOPMENT AND MAINTENANCE**

A customer request database known as the Spills and Complaints Database was developed and put into place in early 2002. It is used on a regular basis by the Surface Water source control staff to track complaints, spills, flooding and investigations. A corresponding Business Inspection Database was developed in late 2003 and was put into use in early 2004 to track inspections of businesses within the City limits. The City currently has two full-time surface water source control staff persons inspecting the approximately 14,000 businesses within the City limits, which does not include home businesses, on a second-priority basis to its first priority of response to complaints and spills. The City is currently assessing the need for more surface water source control staff to handle the number of business inspections. Also in correlation with the Spills and Complaints Database, a Claims Database was developed in late 2003 and put into use in early 2004 to track all filed and/or potential surface and wastewater claims. These databases were developed and based on addresses to enable the source control

staff to view and research spills, complaints, flooding, investigations, business inspections and claims via an internal website. Currently revisions are still being made to these databases, to include research for uploading and synchronization with the City's SAP system.

#### **DESCRIPTION AND LOCATION OF MAJOR STRUCTURAL BMPs AND OTHER STRUCTURAL CONTROLS**

This type of mapping is now available and is regularly updated. The information is available on the City's website under "Map Guide."

The City's GPS crew completed several GPS mapping efforts in 2003 including the completion of a catch basin mapping effort started earlier. An additional 2,800 catch basins within the City's rights of way were mapped including location and attributes. Twenty smaller detention ponds maintained by the City and the large Flett and Gravel Pit regional ponds were mapped including location, perimeter, inlets and outlets. Digital photos were taken of each pond. Locations for whole water and sediment sampling sites in the Foss were mapped for the Source Control Program. Missing stormwater system data was mapped for the City's Asphalt Plant. A spill prevention plan map was also created for the Asphalt Plant.

#### **MAPPING STORM SEWER OUTFALLS AND TRIBUTARY CONVEYANCES**

This type of mapping has been available for many years and is regularly updated.

Another project completed by the GPS crew included the mapping of all of the active and abandoned outfalls on the Wheeler Osgood and Thea Foss Waterways. Mapping included outfall location and outfall pipe back to first stormwater structure. Attributes were collected and digital photos were taken of each outfall.

The following equipment and procedures were used in all stormwater-mapping projects. The Trimble PRO XR was used to map point, line, and area features. A Sony Mavica digital camera was used to record photographs of locations, views, and conditions of stormwater assets in the field. A Trimble Pathfinder was used to download data from the GPS unit and convert data into shapefiles. ArcView and ArcGIS are used in the office to edit data and create maps. Edited data is passed on to the City's GIS system.

#### **S7B7 Intergovernmental Coordination**

A lot of intergovernmental coordination takes place in the implementation of the stormwater program as outlined below. Coordination specific to the Thea Foss Waterway also takes place. Please refer to Section S12 Thea Foss Waterway Basin Program for additional information about coordination activities with respect to the Foss Waterway.

In December, the City of Tacoma and the Puyallup Tribe of Indians (Tribe) met to discuss the possibility of a co-managed surface water program and related utility charges for the Tribe's property. Presently the Tribe owns many parcels of land in and adjacent to the City that contribute stormwater to the City's surface water system. Likewise the City contributes run-off that discharges on Tribal Trust Land. Discussion included the concept of creating a co-management structure for our surface water program addressing water quality and permitting. We also discussed at length the surface water utility charges and how that applies to the Tribe. The Tribe and the City have many issues to resolve but we will proceed in a cooperative spirit. No decisions were made. However, we expect that these discussions will continue in the future.

The City of Tacoma met with the Port of Tacoma (Port) several times during 2003 to discuss ownership, operation and maintenance of drainage ditches and facilities within the Tideflats area. The Tideflats consists of many public and privately owned and operated surface water facilities. Drainage District #23 serves the City of Fife and portions of the Port. Likewise, the City of Tacoma serves the Port and in some cases water from the City enters the Port owned ditches.

A tide gate in the "Fife ditch" is in need of serious repair. The Port, City of Tacoma, City of Fife, and Drainage District #23 are cooperating in a joint venture to repair the gate. The Port is taking the lead and the others jurisdictions have agreed to contribute to the cost of the project.

The City of Tacoma is participating in meetings with the Cities of Fircrest and University Place and the Pierce Conservation District to evaluate and coordinate efforts to address stormwater related issues in Leach Creek. Several property owners along the creek have flooded during extreme storm events. Tacoma and Fircrest have settled with many of the properties. However with the latest storm event in October 2003, many property owners are banding together again against the municipalities. Discussions are underway to evaluate alternatives to reduce the frequency of flooding downstream.

The Pierce County Council passed an ordinance in 2003 to collect five dollars yearly from each tax parcel within the county's Conservation District to help fund the Pierce Conservation District. The City of Tacoma is included in the Conservation District and is a major contributor to those funds. Discussions with the Conservation District are underway to determine which projects adjacent to or within Tacoma are suitable for those funds. The City's top projects include the Flett wetland flow constrictions and Leach Creek flooding issues.

The City has entered into an Interagency Memorandum of Agreement (IMOA) with the Washington State Department of Transportation (WSDOT) for participation in a study of structural stormwater controls. For the City of Tacoma, the overall intent of this IMOA is to work collaboratively to verify the performance of temporary and permanent stormwater treatment technologies, and to evaluate the applicability of these technologies to the conditions in the Thea Foss Waterway. Other participants in this study are the Civil Engineering Research Foundation through the Environmental Technology Evaluation Center (EvTEC), the Washington State Department of Ecology, the City of Seattle, and the University of Washington. This project is to end in June 2004. The City has proposed to continue to fund the project with a \$500,000 TCSP Grant from Federal Highway Administration. In November and December 2003, the City worked with WSDOT and Seattle Public Utilities to draft a new Interagency Agreement with WSDOT to use the WSDOT facility and continue the sampling project. Please refer to Section S7B4 Monitoring for more information on this program.

The City is also coordinating with WSDOT on the major improvements being made to SR 16 and I-5 as part of the installation of high occupancy vehicle (HOV) lanes. The coordination includes topics as varied as the installation and relocation of utilities and wetland mitigation. Extensive coordination is also taking place with the "Tacoma Narrows Constructors", the company building the new Narrows Bridge.

The Tri-County Roads Maintenance Program was developed through the Tri-County ESA process. The program was adopted by the City of Tacoma. Training sessions were offered to all appropriate City staff in 2003.

The City of Tacoma is also participating in Ecology's Technical Review Committee (TRC). The TRC evaluates vendor submissions on emerging stormwater treatment technologies. Based on the evaluation, the technologies may be approved by Ecology, through the TRC, for use as part of a stormwater treatment train and/or as stand alone BMPs (Ecology 2002). The results of these efforts will be used to determine whether effective technologies currently exist for reducing concentrations of contaminants of concern in stormwater.

The City of Tacoma participated in the "Westside" advisory group that provided input to Ecology utilized in their report to the Washington State Legislature on the Municipal Stormwater NPDES Permit Program. This advisory group met many times in 2003 and represented various interests from throughout Western Washington, including representatives from both NPDES Phase I and Phase II communities, businesses, environmental groups and tribes. Tacoma is a Phase I community. The other group consisted of Eastern Washington interests. The report to the legislature was completed by Ecology in January 2004.

The City continued to participate in the Puyallup River Watershed Council, the Hylebos Watershed Action Team and the Chambers-Clover Watershed Council. Members of the three groups consist of various municipalities and representatives from business, tribal and environmental interests as well as interested citizens. The first two groups include membership from King County as well as from Pierce County. The Chambers Creek watershed is located entirely within Pierce County.

The Washington Conservation Corps (WCC) Program, administered by the Washington State Department of Ecology, was continued for a second year, through September 2003. The six-person crew performed maintenance of City restoration sites and stormwater facilities. They also worked with Metro Parks Tacoma and community groups including the Audubon Society, Guadalupe Gardens and others. Due to a loss of Federal Americorp funding, the program was discontinued at the end of September.

The City continued its partnership with Metro Parks Tacoma in order to promote stormwater pollution prevention messages at the Point Defiance Zoo and Aquarium using interactive murals and laboratory staff.

The new "Make a Splash" Environmental Grant Program concluded its first year in 2003. The program was implemented to promote community-based projects that provide environmental education, protection and restoration. Seventeen grants were awarded for a total of \$31,197. The grants were awarded to very diverse community groups, including the Girl Scouts, the Divers' Ecological Society (scuba divers), the Chamber of Commerce, Puget Creek Restoration Society, Puget Sound Car Wash Association, Delong Wetlands Network, the Indochinese Cultural and Service Center and others. The projects were very diverse as well and are described in more detail in Section S7B8i Stormwater Education. The new grant program has and will continue to create many opportunities to partner and coordinate with many different types of groups in Tacoma.

During the implementation of the NRDA consent decree during 2003, coordination took place between various governmental agencies including: The United States Departments of Commerce (National Oceanic and Atmospheric Administration), Interior (Fish and Wildlife Service), and the Environmental Protection Agency, the Washington State Departments of Ecology, Fish and Wildlife, and Natural Resources, the Puyallup Tribe of Indians and the Muckleshoot Indian Tribe. Topics of these meetings included the permitting, design and construction management of the Tahoma Salt Marsh Project,

monitoring of all restoration sites, disposition of the derelict vessels on the Olympic View site, permitting and design considerations for the Hylebos Marsh Project and general coordination of the various components of the consent decree. Coordination was also needed for the monthly Commencement Bay patrols.

Source Control staff organized and hosted a meeting with staff from other municipalities to discuss program implementation, exchange ideas, and resolve problems. They also organized and hosted a meeting with Ecology waste inspectors and water quality staff, and staff from the Tacoma-Pierce County Health Department and the Puget Sound Clean Air Agency to discuss industry information, concerns and inspection priorities.

During the development of the City's response to the West Nile Virus, a lot of coordination took place with the Tacoma-Pierce County Health Department, the Washington State Department of Health and other municipal surface water management staff.

Source Control staff coordinated with the University of Washington – Tacoma, Environmental Science Program to monitor water quality parameters and take environmental samples in Commencement Bay.

#### **GENERAL COORDINATION FOR MONITORING, MAPPING, DATA MANAGEMENT AND MODELING**

The City continues to coordinate a variety of activities with other municipalities and agencies. Issues related to the Flett Drainage Basin are coordinated with Pierce County, Lakewood, the Pierce Conservation District and the Washington State Department of Transportation (WSDOT). Activities related to the ASARCO site are coordinated with the City of Ruston, Metro Parks Tacoma, and the U.S. Environmental Protection Agency (EPA). Issues related to the cleanup of the Foss Waterway are coordinated with WSDOT, EPA, the Army Corps of Engineers, the Washington State Department of Natural Resources, the Puyallup Tribe and Ecology. Activities related to the T-Street Drainage Basin are coordinated with Pierce County. Activities related to the Leach Creek Drainage Basin are coordinated with the cities of University Place and Fircrest and the Pierce Conservation District. There is also an environmental group, the Leach Creek Stewards, which has formed with Leach Creek as its focus. The Surface Water Utility staff has met with and has coordinated information with this group. Activities in NE Tacoma, including the Joe's Creek Drainage Basin, are coordinated with Federal Way. Activities in the Hylebos Creek Drainage Basin are coordinated with the cities of Federal Way, Fife, Milton, and Edgewood, and with Pierce and King Counties. Many activities in the Tideflats are coordinated with the Port of Tacoma.

The City has also coordinated activities with the environmental group, Citizens for a Healthy Bay (CHB). Coordinated activities have included \$10,000 in City financial support for the Bay Keeper Program in 2000, 2001, 2002 and again in 2003, and funding to support their operation of an environmental hotline. The City has also worked with this group on storm drain stenciling and curb marker placement. Partnerships with this environmental group are continuing into 2004.

#### **GENERAL COORDINATION FOR CONTROL OF STORMWATER POLLUTION FROM OTHER JURISDICTIONS**

The City continues to coordinate with other jurisdictions and agencies in a variety of ways. The City participates in the NPDES municipal permittees group, the Puyallup River Watershed Council, the Hylebos Watershed Action Team, the Chambers-Clover Creek Interim Watershed Council, and the APWA Stormwater Managers' Meetings.

Funds are provided to the Pierce County Conservation District to support the Stream Team, which is sponsored by Tacoma, Pierce County, and the cities of Puyallup, Fife, Sumner and Lakewood.

#### **DEVELOPMENT OF COORDINATED SWMPs FOR WATERBODIES SHARED WITH OTHER MUNICIPAL PERMITTEES**

The City coordinates with other municipalities to address stormwater concerns in shared waterbodies as described above.

### **S7B8 Stormwater Control Components**

#### **S7B8a Run-off From New Development and Redevelopment** **Development of an Ordinance Containing Minimum Technical Requirements Equivalent to Ecology's Manual**

The City's new Surface Water Management Manual (Manual) was completed in 2002 and implemented on January 1, 2003. This manual regulates stormwater run-off for all new development and redevelopment projects throughout the City, including residential, commercial and industrial sites and roads. The City's new manual is based on Ecology's Stormwater Management Manual for Western Washington that was published in August of 2001. The City's manual contains the same minimum technical requirements as Ecology's manual, plus two additional requirements.

Tacoma Municipal Code 12.08 references the Surface Water Management Manual and contains the minimum requirements from the new manual and provisions for the inspection of private businesses and the maintenance of private stormwater systems. The ordinance authorizes the Public Works Director to implement the manual. The ordinance was revised during 2002 and the new ordinance also went into effect on January 1, 2003. All projects submitting for permits after that date have been required to comply with the new manual.

The Environmental Services Science and Engineering Division reviews all stormwater plans for new development and redevelopment projects. All designs are reviewed for compliance with the minimum requirements including best management practices (BMPs) for erosion control, water quality, and flow control. Plans are also reviewed for compliance with the City's excavation and grading ordinance and the critical area's preservation ordinance. Environmental Services works with both the Building and Land Use Services (BLUS) and Construction Divisions of the Public Works Department to provide plan review for various projects/permits throughout the City. All stormwater facilities designed by City staff are designed in accordance with the City's manual.

The Environmental Services Wastewater Operations Division also reviews plans for compliance with the Wastewater Pretreatment Standards.

The BLUS Division of the Public Works Department administers the permitting process for all City building permits and land use actions. They collect the permit fees and route all plans to the various City departments for review. BLUS provides conditions for various land use actions such as rezones, subdivisions, wetland and shoreline permits. BLUS inspectors provide the inspections for all private construction projects including grading and erosion control. BLUS also distributes NPDES Construction Notice of Intent Forms to all developers who have projects that will include five acres or more of land clearing activities. These projects require a



separate NPDES Permit from Ecology. In 2003, BLUS added one additional staff member to handle the increase in work relating to small site erosion control plan reviews and inspections.

The Construction Division of the Public Works Department administers City projects and all work performed in City right-of-way. Their administration includes plan review and inspection for these projects. Inspectors for the Construction Division verify that work within the right-of-way is performed to City standards, including installation and maintenance of appropriate BMPs.



Plan Review Staff

In 2003, the Environmental Services plan review process was improved by adding an additional staff person to specifically address land use and easement issues. This removed these items from the remaining team's list of projects so they were able to focus specifically on drainage plan submittals. Staff now includes two engineering technicians and three engineers including the team lead. By dedicating a specific team to stormwater plan review, the City continued to increase the timeliness and quality of the plan review process in 2003. The team provides pre-submittal consultations that identify surface water design requirements prior to applicants' submission of designs for building permits. These consultations allow the City to identify potential erosion and water quality issues prior to plan submittal. The plan review team also provides comments to the City's building official and to the land use administrator to use as conditions on various land use actions.

A staff person from the Surface Water Program worked with both the BLUS Division of the Public Works Department and with Tacoma's Economic Development Department in the development of revisions to the City's Critical Areas Ordinance. This ordinance is implemented by BLUS. Surface Water Program staff also worked with the BLUS Division in their update of the SEPA process for industrial sites.

#### **S7B8b Existing Residential and Commercial Development Run-off**

The City's current program includes business inspections, drainage complaints, water quality complaints, spill response, interagency coordination, stormwater education, capital improvement projects and a major source control effort in the Thea Foss Waterway drainage basin.

The City has had an ongoing business inspection program for several years. The program focuses on three different types of inspections: Formal business inspections, informal inspections or focused inspections, as well as special projects. A new water quality inspector staff person was hired in August 2003. The addition of this new person allowed more field inspections to be completed in 2003 than in the previous year as shown in the following table.

**Complaints, Spills and Business Inspections  
January 2002 to December 2003**

	<b>2002</b>	<b>2003</b>
# of Complaints	195	275
Follow-up	88	166
# of Spills	48	38
Follow-up	40	30
# of Inspections – Planned	106	322
# of Inspections – Unplanned	106	28
Follow-up	93	114
<b>Grand Total</b>	<b>676</b>	<b>973</b>

The largest classes of complaints received in 2003 involved petroleum products, water (flooding/standing/drainage), mud, silt or muddy water, and sewage.

Several City-owned facilities were inspected during 2003. The facilities inspected included the Asphalt Plant, Tacoma Dome, Steam Plant, Convention Center, Sign Shop, Vehicle Maintenance Shop III, Tacoma Rail, Cheney Stadium and the Tacoma Public Utilities main yard. The City-owned facility inspections were performed in the same fashion as those of private business/industry. It is anticipated that all City-owned facilities will be inspected by the end of 2004.

Stormwater and wastewater source control inspectors hold a monthly spill/claims meeting to share information, coordinate efforts and debrief on significant events. Training on different topics is also provided at these meetings.

The City has a crew trained in mapping physical features of the landscape using a global positioning system (GPS). This system uses satellite data to accurately locate drainage features in the field. Please refer to S7B6 Data Management above for more information about what the GPS crew did in 2003.



Grease

The City has a Washington State Department of Ecology (Ecology) delegated Wastewater Pretreatment Program. The staff that perform these inspections also look for stormwater problems. The inspection and sampling program staff conducted 69 formal inspections with respect to 39 businesses and 79 sampling events for 25 businesses. Other single purpose visits were conducted and selected sampling of other dischargers was also performed. These inspections and sampling events were completed during the pretreatment program's reporting year, July 1, 2002, to June

30, 2003. The pretreatment staff also review building plans for compliance with the Wastewater Pretreatment Standards and respond to stormwater complaints for the Surface Water Utility staff when they are not available. They also respond to spills for Ecology. They revised their spill response policy in 2003.

After obtaining a grant from the Washington State Department of Ecology in May of 2002, the City of Tacoma undertook a mercury reduction campaign in 2003 with a goal of educating residents and businesses about mercury: What it is, where it's found, what hazards it poses to environmental health, and what we can do to reduce our exposure to it. "Mercury Matters" was chosen as both the name and message of the campaign. General messages encouraged residents to: Become informed about mercury pollution, know where they will find mercury in their homes, purchase mercury-free products whenever possible and keep waste that contains mercury out of the garbage. The program provided for an exchange of household mercury thermometers, recycling of used thermostats and fluorescent lights, development of best management practices for dentists, and education of businesses with a focus on auto body shops and hospitals.

The City has a South Tacoma Groundwater Protection District that is located in the south central part of the City. The ordinance that created the district mainly addresses above and below ground storage tanks. The Tacoma-Pierce County Health Department inspects these businesses for proper chemical storage. Many of the businesses in this district are located in the Thea Foss Watershed. The health department staff did approximately 200 door-to-door inspections in 2003. There were 110 businesses with hazardous waste permits that were inspected. Of these, 32 were businesses with new permits and 68 were businesses whose permits were being renewed. All of the above mentioned inspections were done within the South Tacoma Groundwater Protection District.

The City again updated its major storm event emergency plan. The emergency plan requires all surface water staff and many wastewater staff to investigate and abate problems during extreme rainfall events, including processing damage claims against the City. A training workshop was also held for the staff in 2003. Tacoma received in excess of five inches of rain during an extreme rain event on October 22<sup>nd</sup>. Sites throughout Tacoma were checked during and after the storm and the information gained was included in the emergency plan.

In 1997, voters approved changes in Washington State law, permitting utilities to make loans for the purpose of reducing pollution and preserving capacity in stormwater and wastewater treatment and conveyance systems. In April of 1999, Environmental Services began offering low interest loans for wastewater or stormwater pretreatment equipment, septic system abandonment, and faulty side sewer replacement or repair. During 2003, 24 residents abandoned their on-site sewage disposal systems and connected to the sanitary sewer under the City's "Septic Amnesty Program" and one other resident connected to the sanitary sewer, but didn't utilize this program. Approximately 40 new loans were granted in 2003 and on December 31, 2003, the outstanding loan balance was \$362,258. The total amount loaned over the past almost five years is \$790,000.

Tacoma has a program called "Tacoma Cares" that focuses on cleanup and revitalization of neighborhoods throughout the City. Each year in cooperation with the community, the program facilitates more than 50 cleanups resulting in the

removal of approximately 500 tons of debris, abates over 1,200 nuisance cases, removes more than 250 junk vehicles from private property and completes more than 15 crime prevention and fence repair projects. The program has a "Blight Mobile" operated by the Solid Waste Utility that helps community groups dispose of litter and debris on streets, alleys and other public rights-of-way. These major efforts have resulted in a cleaner environment, which helps result in cleaner stormwater run-off.

The lower part of Crystal Springs Creek has caused flooding of residential streets in the past. The City is addressing the flooding. In 2003, the City constructed a capital improvement project consisting of a bypass stormwater pipe installed to drain a low area in a street. The bypass pipe then conveys stormwater to a trunk line in 6<sup>th</sup> Avenue.

Slip lining of 600 feet of 15" storm line was done at East 19<sup>th</sup> and East D Streets to stop the "oil snakes" from discharging to the Foss Waterway. Refer to S12 Thea Foss Waterway Basin Program, Commercial and Industrial Monitoring for more information about this project.

#### **S7B8c Municipal Storm Sewer Operation and Maintenance**

The Public Works Department has an Environmental Services/Maintenance Division that is responsible for maintaining both the storm drainage and the sanitary sewer systems. The following table indicates the level of maintenance efforts that were completed during 2003.

January 2003 to December 2003

# of CBs Checked and Cleaned		4,264
# of Scuppers Cleaned		70
# of Culverts Maintained		173
# of Ditches Checked and Maintained		155
# of Detention Ponds & Holding Basins Checked and Maintained		95
# of Manholes Checked		230
# of Manholes Cleaned		102
# Storm Drainage & Flooding Problems Calls		582
Mainline Activities (in feet)		31,029
Velocited	1,077'	
Flushed	2,442'	
Cleaned	20,437'	
Backcut	7,073'	
Total # of Feet Maintained:		
Mainline Inspections:		36,198'
In House	22,994'	
Pay	13,204	
Total # of Feet TV'ed:		36,198'

The Environmental Services/Maintenance Division is developing a comprehensive maintenance program that will extend the life of facilities and systems, and improve system reliability and performance. This program includes maintenance improvements and modifications, monitoring and evaluation of system performance, and the development of specific performance standards for each maintenance

activity. Some of the critical maintenance activities included in the maintenance program are: TV inspections, catch basin inspection and cleaning, ditch inspection and maintenance, and the cleaning of scuppers and sumps.

In July, the Tacoma-Pierce County Health Department issued a Solid Waste Permit to the City of Tacoma to govern storm water waste handling and disposal practices. During the year, samples of the waste were taken each quarter and analyzed for various constituents necessary to determine disposal options. Sample analysis consistently indicated that normal disposal practices (land application) were feasible. The City, throughout 2003, disposed of the storm water waste through Fife Sand & Gravel.

The Surface Water Program continued to sponsor a Washington Conservation Corps (WCC) crew through September 2003. The WCC is a job training and service program for young adults who are dedicated to conserving and enhancing the natural resources of Washington State. The crew continued to complete City maintenance projects as well as community proposed projects during 2003. They were involved in the maintenance of detention ponds and ditches. The City continues to feel that this is an important program and valuable to the community and the environment and hopes to be able to sponsor a crew again in the future.

The Washington State Department of Transportation (WSDOT) completed a new water dump facility, along SR 7 at South 38<sup>th</sup> Street during the latter months of 2003. The facility is primarily designed for freeway CB cleaning waste with a discharge to the sanitary sewer after pretreatment. The previous WSDOT operation was shut down after the City found wastewater entering the storm line that drained to Outfall 237 B in the Thea Foss Waterway.

The City hired a company to clean five municipally owned, residential storm water detention ponds during the summer of 2003. The pond sediments were sampled prior to cleaning to ensure that the material/spoils could be disposed of properly. The ponds were inspected prior to and after cleaning to ensure they were working as designed. The residents living in the neighborhoods served by the ponds were educated about the work before the cleaning took place, by way of flyers left on doors or handed to the residents in person. The flyers explained the purpose of the detention ponds and why maintenance is necessary. The flyers included a name and phone number in the event residents had additional questions or concerns.

One of the City's large stormwater pumping stations was found to be contaminated with an oily substance. The Source Control staff coordinated with the Maintenance staff and a contractor was called to remove the oil from the pump's wet well. The contractor worked for four hours pumping and flushing the wet well. Approximately 2,800 gallons of oil mixed with water was removed. Laboratory testing showed that the oil was of vegetable origin, not petroleum. It was estimated that 50 to 75 gallons of oil had been dumped into the stormwater system. Staff was not able to locate the illegal dumper of the oil. Fortunately, none of the oil reached the Puyallup River.

The City's storm drainage system grew larger in 2003. A total of 16,848 linear feet of "donated" storm pipe was installed in 2003 with an estimated value of \$1,900,000. These lines were installed as part of new development projects and were paid for by the developers using City approved materials and methods. The lines were then turned over or "donated" to the City and became part of the City's system for future

operation and maintenance. A total of 7,346 linear feet of new storm pipe was added during 2003 and 2,383 linear feet of old existing storm pipe was “retired”. Most of the new storm pipe was added as part of street improvements and the new pipe replaced existing pipe that was “retired”.

#### **S7B8d City Road Operation and Maintenance**

The Streets and Grounds Division of the Public Works Department is responsible for road operation and maintenance. This division sweeps the streets, does manual cleaning of stormwater features such as culverts and catch basin grates, has a fall leaf pickup program, has a de-icing and snow removal program, and responds to spills.

Operations in 2003 were very similar to those in 2002. The City had two or three sweepers in use on a daily basis. Approximately 4,300 miles of streets were swept and 4,500 cubic yards of material were collected. This street waste was disposed of in a licensed, mixed municipal solid waste landfill.

Staff members from the Streets and Grounds Division continued to be very active participants in the Regional Road Maintenance Endangered Species Act Program during 2003. They are currently implementing this program in all the tasks they perform. They have a certified professional in erosion and sediment control on staff, which is also accredited by the University of Washington to instruct the Regional Road Maintenance ESA Program. Training for this program began in the fall of 2002 and was completed for all Streets and Grounds employees in 2003. In addition, during this same time period, training was initiated and completed for all sewer employees of the Environmental Services Division of the Public Works Department.

#### **S7B8e Water Quality Considerations in Flood Management Projects**

The City constructed a small flood control project in the vicinity of Crystal Creek in the Western Slopes area of Tacoma. This project was done to prevent repeated flooding on a residential street. The project did not incorporate water quality provisions because it was a very small project done in a residential neighborhood.

#### **S7B8f Run-off From Pesticide and Fertilizer Application**

Staff and community volunteers participated in a “Natural Yard Day” Program sponsored by a large home improvement store.

Personnel from various divisions of Public Works staffed several booths at Tacoma’s Home and Garden Show. They answered questions for the public, many of which related to water quality concerns. Surface Water Management also distributed flyers and posters focused on things that the community could do to protect water quality such as car washing, auto maintenance, pet waste disposal, and use of yard chemicals.

The City sponsored a lawn mower turn-in event at the recycling center at the landfill. Over 150 gas lawn mowers were recycled. The City encourages the use of mulching mowers.

The City has a large biosolids-recycling program called TAGRO. TAGRO mix is made from extensively treated wastewater solids that are mixed with sawdust and sand. It is used extensively as a soil amendment. The City recycles 4,000 dry tons of biosolids a year. TAGRO’s nutrients are released slowly, and soil conditioned with TAGRO retains water better. Plants grow very well in soils amended with TAGRO.

This program benefits the community on several different levels. TAGRO is used by homeowners on their lawns and gardens. It's also used on community gardens, parks and other non-residential areas such as forests and agricultural areas. In all cases it returns nutrients to the soil. TAGRO mix is also used in a demonstration garden at the central wastewater treatment plant. This garden produces prize-winning vegetables and over 1,000 pounds of food are given to local food banks each year. The TAGRO Program debuted two new products in August 2003. They began marketing both a mulch and a potting soil. Both of the new products have been very popular and are made as part of the biosolids-recycling program.

The Streets and Grounds Division of Public Works has made significant changes in their operations. They have changed to using mulching mowers on most areas to reduce the need for insect spraying. They have reduced road shoulder spraying by 50 percent and are still reducing the amount of sterilants used, choosing safer chemicals instead. Many of their employees are licensed pesticide applicators and they've been exposed to Integrated Pest Control Management (IPM) as part of their training. They've also reassessed their expectations and values and are accepting a lower level of "visual appeal" or quality in exchange for providing more protection of the environment.

#### **S7B8g Illicit Storm Sewer Discharge Elimination**

The elimination of illegal discharges is one of the City's top stormwater priorities. The City currently has an ordinance that is used to enforce the elimination of illicit discharges. The ordinance was revised in 2002 and implemented on January 1, 2003.

The City has four staff people working towards the elimination of illicit discharges. When they do business inspections, they provide the business operators with technical assistance regarding the elimination of illicit discharges and they educate business operators about the proper BMPs to use.

The field staff observe or assist emergency response agencies with spill response activities. They provide the agencies with information on the City's stormwater system with the goal of keeping the spilled material out of the system. They responded to 38 spills in 2003. They continue to work with mobile washers and charity car wash operators to insure that these types of washing activities are done correctly. The field staff also responds to general concerns regarding water quality problems.

During 2003, the Science & Engineering Division issued six Special Approved Discharge (SAD) Permits for discharging to the City's municipal storm drainage system. Three of the SAD Permits are/will be ongoing, and three were construction related permits and were relatively short term. The permits were issued to insure water quality standard were met and to assess fees for use of the City's municipal storm drainage system. There were no violations of permit requirements during the year 2003.

Field staff smoke test or dye test when investigating possible improper sanitary connections to the storm drainage system. This insures that there are no improper connections to the storm drainage system, and if there are, they are corrected as soon as possible.

The City has a household hazardous waste disposal and recycling center located at the landfill. These facilities are open seven days a week, are free to the public and are very popular. In 2003, 180.6 tons of waste was collected at the household hazardous waste facility. A variety of different recyclables were collected at the recycling center. It provides a place for the community to safely dispose of waste products that otherwise might end up in a storm drain. In the past two years, the household hazardous waste program has added programs to collect cooking oils, mercury thermometers and fluorescent light bulbs.

#### **S7B8h Industrial Stormwater Monitoring and Control**

The City reviews all commercial plans for adequacy of the private storm sewer systems and their connection to the City's system. New construction is inspected to ensure compliance with City requirements.

The City has a South Tacoma Groundwater Protection District that is located in the south central part of the City. The ordinance that created the district mainly addresses above and below ground storage tanks. The Tacoma-Pierce County Health Department inspects these businesses for proper chemical storage. Please refer to Section S7B8b Existing Residential and Commercial Development Run-off for more information about this program.

The City's four wastewater source control pretreatment staff inspects industrial sites. They also look for stormwater problems during their inspections. The industrial inspections are coordinated with Ecology staff as appropriate. This coordination includes the referral of problem sites to Ecology when the industry has an industrial NPDES Permit.

Two Surface Water staff gave a presentation on stormwater quality at an Industrial Users' Group Meeting that was sponsored by the Wastewater Source Control Program.

#### **S7B8i Stormwater Education**

##### **EMPLOYEE EDUCATION**

The City encourages its entire Surface Water staff, as well as all other staff working in the construction and water quality related fields, to participate in continuing education. Many staff from throughout the City attended water quality-related training courses in 2003.

Staff City-wide participated in a wide variety of training classes to develop a working knowledge of the City's new computer system. All of the Surface Water Management staff attended courses relevant to their work activities. Some of the topics included basic navigation, time cards, customer contacts, contract creation and maintenance, purchase orders, project planning, design and management and travel expenses.

An in-house expert taught 28 classes to 207 employees on the Regional Roads Maintenance Endangered Species Act (ESA) Program including an introduction to the Surface Water Management Manual. Ninety-three of those attending this class were from Public Works and 114 were from Tacoma Power and Tacoma Water.

The City made a major effort in 2003 to prepare for the potential arrival of the West Nile Virus. A phased response plan was developed that was based on the one developed by the State Health Department. The City coordinated closely with the



Tacoma-Pierce County Health Department. Staff from Public Works, Risk Management, Community Relations and Tacoma Public Utilities worked on the development of this plan. A major focus of the plan was education. City employees were educated about the virus and mosquito repellent was provided to field crews. We updated our managers and the City Council about the disease. We did a local TV show on the virus, provided information in utility bill inserts to all City utility customers, wrote a press release, included articles in the City's two internal newsletters, put the plan on the City's website, gave all employees a brochure on the virus and provided several educational workshops to employees and made a presentation to Environmental Services' Customer Advisory Panel. We also trained employees on how to respond to questions about the virus over the phone, how to report and sample dead birds and how to sample for mosquitoes. The following information lists the department, the division, the name of the class/workshop/conference and the number of attendees.

### **Public Works Department**

#### **Science and Engineering Division**

Stormwater Infiltration Fundamentals, Design and Site Assessment – 4  
Stormwater Treatment: How It Works (Or Does It?) - 5  
Boeing/Ecology Conference on Industrial NPDES Permits – 3  
WSDOT Construction Site Erosion and Sediment Control Certification – 1  
High Pressure Pavement Cleaning Technology – 2  
Pollutant Fate and Transport in the Environment – 1  
Environmental Chemistry – 1  
The Biology, History and Management of Salmon in the Pacific Northwest - 1  
Pollution Prevention Planning – 1  
Western Washington Hydrology Modeling – 1  
Environmental Statistics for Site Managers – 1  
TMDLs – 1  
STORMCON Conference – 1  
International Erosion Control Course - 1  
MTCA – 1  
Wetland and Upland Habitat Design – 1  
Native Plant Class – 1  
Noxious Weeds – 1  
Restoration Toolbox – 1  
Groundwater Pollution and Hydrology – 1  
Use of Constructed Wetlands for Improving Stormwater Quality – 2  
Restore America's Estuaries – 1  
Brown Field Conference – 2  
Stormwater Management Storm Filter Workshop - several  
Hosted the Stormwater Management Systems field day - several

#### **Engineering Division**

New Technologies and Concepts in Stormwater Treatment - 2

#### **Construction Division**

International Erosion Control Course - 1  
Field Staff Conference, Road Map to Success – 4  
Certified Professional in Stormwater Quality – 1  
Washington Asphalt Conference - 4

#### Buildings and Land Use Services Division

Wastewater Industrial Users Presentation - 1

#### Wastewater Operations and Maintenance Divisions

2003 Water Environment Foundation Technical Exhibition and Conference – 2

Pacific Northwest Clean Water Association Conference – 2

Asset Management and CMOM Programs - 2

#### **General Services**

##### Community Relations

Soil Foodweb, Inc. – 1

Best Practices in Marine Education – 2

Northwest Aquatic and Marine Educators - 2

#### **Tacoma Public Utilities**

##### Tacoma Power, Tacoma Water and Click! Network

Regional Roads Maintenance ESA Program and Introduction to the Surface Water Management Manual - 114

Oil Spill Prevention, Control and Countermeasures – 60

WETRC Water Treatment Course – 1

WSDOT Erosion Control Course - 2

City staff members also participate in the APWA Stormwater Managers' Meetings, the NPDES Municipal Permittees Work Group, the Puyallup River Watershed Council, the Hylebos Watershed Action Team, Ecology's Technical Review Committee, and the Chambers-Clover Creek Interim Watershed Council. All of these provide opportunities for additional stormwater education.

Surface Water Management participated in the 2003 Environmental Services Annual Meeting with staff time and resources. An effort was made to educate all utility employees about what the other utilities do on a day-to-day basis. The three utilities are Surface Water, Wastewater and Solid Waste. About 400 employees attended the meeting.

Several staff from the Surface Water Program received Public Works, Environmental Services awards for exemplary work. These awards were given to the staff members at the annual Environmental Services staff meeting mentioned above.

Most of the Science and Engineering Division surface water staff and staff from other programs participated in an emergency response activity during and after the record rainfall in October 2003. The staff implemented the City's emergency response procedures. The emergency response allowed the staff to become familiar with the type and location of the facilities and identified "potential trouble spots" during the storm. The surface water staff then reviewed the emergency response plan that was developed for extreme rain events and updated it as needed based on information gathered in the field.

## **PUBLIC EDUCATION**

The City runs an extensive public educational program.

Please see the information under staff education above for information about the City's West Nile Virus Program. The City's educational efforts for the West Nile Virus were focused on educating City employees about the risk of the virus and the Tacoma-Pierce County Health Department's educational efforts were focused on the general public. However, the public did benefit from some of the City's educational efforts as well, particularly the TV show and the utility bill inserts.

The "Make a Splash" Environmental Grant Program made its debut at the end of 2002 and the projects were completed during 2003. The focus of the grant program is to fund community based projects that concentrate on and actively work towards environmental education, protection, and restoration. Twenty qualifying applications were received. Of the \$50,000 in grant funds available, a total of \$31,197 was awarded to 16 projects. Approved grant monies was awarded in early 2003. Community members came up with a variety of activities that were sponsored by the program. Most of the activities were very successful and some of them are summarized below:

- The Indochinese Cultural and Service Center received \$2,500 to educate ten children on water quality topics through speakers and field trips. The children in turn, involved an additional 193 people in the program.
- The Tacoma Nature center received \$1,530 to educate Girl Scouts about Swan Creek's riparian ecosystem, the benefits of native plants and the negative impacts of invasive plants. This program involved 15 scout members.
  - When the girls were asked to describe the best part of one of the workshops, three responses are included below:
    - "The best part was everything"
    - "Being with caring people"
    - "Making posters about the Riparian Habitat"
- The Chamber of Commerce received \$2,500 to recognize a business for outstanding environmental stewardship. An award event was held and approximately 100 people attended the event.
- The Puget Creek Restoration Society received \$2,500 for work on Puget Creek. The grant was used to establish monitoring sites, train volunteers, develop a sampling plan brochure and purchase water quality monitoring equipment.
- The Tacoma-Pierce County Health Department received \$2,500 to help sponsor the very popular and successful Tacoma-Pierce County Children's' Water Festival. The event was attended by 525 fifth graders.

The City continues to be one of the major sponsors of the Pierce Conservation District Stream Team, a multi-jurisdictional effort. The City provides \$25,000 in financial support and some supplies to the Stream Team each year. The Stream Team helps interested Tacoma community groups organize storm drain stenciling and curb marking efforts. They also offer other programs such as wetland and stream bank cleanups and revegetation, workshops, and tours for the public. The Stream Team has a water quality booth that is displayed at various community events including the Puyallup Fair. The Stream Team has a very large, active group of volunteers with approximately 500 Tacoma residents in their database.



Girl Scouts

The City also contracts with a local non-profit environmental group, Citizens for a Healthy Bay (CHB), for \$12,250 a year to operate a joint water pollution hotline (\$2,250) and to run a Commencement Bay-wide water pollution boat patrol service (\$10,000) called The Bay Keeper, part of the National Keeper Initiative. One of our Community Relation's staff members also serves on CHB's board of directors. CHB has a base of more than 600 volunteers in the greater Tacoma area.

The City continued to coordinate distribution of Clean Bay Boating Kits with Citizens for a Healthy Bay throughout 2003 and distributed over 100 of the kits. The City also paid for signs and brochures advertising the boating kits. The signs and flyers were placed at ten marinas in Tacoma. The flyers are now available at more than 75 locations in Puget Sound.

During 2003, the City supplied curb marking and stenciling supplies to both Citizens for a Healthy Bay and Stream Team to pass out to groups wishing to stencil and mark storm catch basins. It is estimated that during 2003, over 500 catch basins were stenciled or marked. The City of Tacoma usually participates in both a stenciling and curb-marking event with CHB & Stream Team, however, both organizations also conduct their own events throughout the year.

Surface Water Management is continuing to work with MetroParks Tacoma to support a variety of educational efforts that focus on stormwater and marine life at the Point Defiance Aquarium. 2003 was the third of a five-year \$100,000 grant that supports a joint educational effort. The City committed \$20,000 a year for five years towards these efforts. In 2003, these monies provided staffing (April – October) and equipment for the Marine Discovery Center. The goal is to strengthen the connection between non-point source pollution and Commencement Bay waters in the minds of the visitors. Between April and October of 2003, 63,375 people visited the Marine Discovery Center at the aquarium.

The City sponsored a lawn mower turn-in event at the recycling center at the landfill. Over 150 gas lawn mowers were recycled. The City encourages the use of mulching mowers.

Tacoma's Resource Conservation Steward Program is a volunteer community education program designed to help spread the word about resource conservation to Tacoma residents. Volunteers receive 40-hours of free training in resource conservation, waste prevention, water quality, home composting, natural lawn care, and alternatives to household hazardous waste. In exchange, volunteers make a 40-

hour commitment to share the knowledge and skills they've gained with Tacoma residents. Resource conservation stewards make an invaluable contribution to the community as they educate residents in local neighborhoods, schools and workplaces. Stewards provide useful information that helps City of Tacoma residents make informed decisions about waste prevention, the wise use of resources and ways to minimize the environmental impacts of our everyday activities. Since the program's inception in 2002, 37 volunteers have contributed over 659 hours of community service at 45 community events.

The EnviroChallenger Program has proven to be a very popular educational tool. In fact, the program has been so successful that a second educator was added in 2003 to keep up with teacher demand, increase our presence at community events and to work with Tacoma businesses on waste reduction. This staffed, mobile, educational unit visited 41 of 50 Tacoma public schools, several private schools and various community centers, providing environmental education to K-5 children. The educational programs includes: Water Quality, Watersheds, Recycling and Waste Prevention, Household Hazardous Materials, Salmon and the Endangered Species Act, Wastewater Treatment, and Worm Composting. Pre- and post-lessons are mailed to teachers and post-visit take home activities are left following the in-class lessons.

The EnviroChallenger messages reached approximately 16,800 kids in Tacoma in 2003, through 700 classroom and community presentations. The EnviroChallenger continues to be an award-winning program. It received the National Environmental Achievement Award, Public Information and Education - Association of Metropolitan Sewerage Agencies, Award of Excellence-APEX, Gold Award, Environmental Education School Curricula-Solid Waste Association of North America, Silver Circles-Second Place, Marketing Materials-3CMA, Award of Excellence-Third Place, Organizational Excellence Award-Environmental Education Association of Washington, Service Delivery-3CMA, and the Preserve Planet Earth Award-Tacoma Rotary. The program coordinator presented at the Washington State Recycling Conference in Spokane and received the highest marks of all presentations. The City of Tacoma is very proud of this successful program.



The EnviroChallenger Van

Personnel from various divisions of Public Works staffed several booths at Tacoma's Home and Garden Show. They answered questions for the public, many of which related to water quality concerns. Staff participated in a variety of other educational activities such as Channel 12-TV Tacoma appearances on a talk show program called "CityLine" and on a news magazine show called "CityScape". Staff also

assisted with the Stream Team's water quality booth at the Puyallup Fair. Personnel also participated in staffing a booth at NatureFest, the "Fest" on the Thea Foss Waterway and Northwest Natural Yard Days. Surface Water Management also distributed flyers and posters focused on things that the community could do to protect water quality such as car washing, auto maintenance, pet waste disposal, and the use of yard chemicals.

The City of Tacoma contracted with an outside company the first half of 2003 to help communicate the City's three-year, \$90 million cleanup plan for the Thea Foss Waterway, named a Superfund site in 1983. In July, the City hired a full-time staff member to direct a more local, cost-effective community and media relations campaign. Since then, the City has created an informational web site, fact sheet, quarterly newsletter, periodic community presentations and other public information resources as well as a plan for interpretive signs along the waterway. Numerous newspaper, magazine, TV and radio media have featured the project, and the Seattle Daily Journal of Commerce named the cleanup one of the region's Top 20 Projects of 2003.

Plans also are under way for a grant-supported stormwater education program in cooperation with Citizens for a Healthy Bay, a nonprofit environmental stewardship group, and a business assessment program with Tacoma-Pierce County Health Department's EnviroStars Program and ECOSS, a Seattle-based environmental education nonprofit.

Environmental Services developed and distributes its "Envirotalk" Newsletter. The six-page newsletter, which is printed on recycled paper, includes articles relevant to the Surface Water, Wastewater and Solid Waste Utilities and is distributed to 52,000 single-family residences in Tacoma three times per year.

The City of Tacoma continued its sponsorship of the Department of Ecology-administered Washington Conservation Corps (WCC) Program through the September 2003 end of the program year when the funding ended. \$130,000 for the year ending in September was split between Ecology and the City in order to fund the program. The six person crew worked on many community projects as well as maintenance of City restoration sites and stormwater facilities. Part of the program included training and education for the crew members.

The Clean Bay Car Wash Kits received new educational materials and a marketing campaign in 2003. These car wash kits are loaned free to nonprofit groups to ensure that dirty wash water from fund-raising car washes is discharged safely to the sanitary sewer instead of the stormwater system. New educational materials show how easy the kits are to use and how important it is to protect marine life down the surface water pipeline. The spring marketing campaign, which included direct mail to schools, churches, service clubs and other organizations that hold fund-raisers, kicked off with a car wash at a local school, where City of Tacoma staff members demonstrated the kits. The City maintains six car wash kits.

Tacoma was very involved in a Mercury Reduction Program during 2003. Educational and recycling efforts were focused on the public and on businesses. Please refer to Section S7B8b Existing Residential and Commercial Development Run-off for more information about this program.

Two Surface Water staff gave a presentation on stormwater quality at an Industrial Users' Group Meeting that was sponsored by the Wastewater Source Control Program.

Surface Water Management staff worked extensively with reporters from local newspapers, radio and TV stations about issues related to surface water.

An interpretive sign was installed at the Olympic View Resource Area habitat restoration site.

Education of the public also took place as part of the City's formal Business Inspection Program.

During 2003, Tacoma Water also provided a variety of projects and programs to help promote water education.

Tacoma Water partnered with the Tacoma Rainiers to present the Tacoma Rainiers Kids Club. Young baseball fans age fourteen and under received a kids club cap, t-shirt, free admission to Sunday baseball games, water conservation information and a family ticket good for a free barbeque/player autograph session.

The first ever Tacoma/Pierce County Children's Water Festival was held in March with approximately 525 fifth grade students participating in a variety of water conservation exercises and games. Tacoma Water hosted two activities, "Dripial Pursuit" and "The Weakest Sink" to test the students' knowledge of water.

For the second consecutive year, the AquaQuest Program provided challenging classroom sessions and enlightening tours of the Tacoma Water system. More than 600 elementary and middle school students engaged in a comprehensive study of how Tacoma Water delivers clean, safe drinking water to its customers.

As a member of the Water Conservation Coalition of Puget Sound (WCCPS), Tacoma Water expanded its educational program by introducing the AquaPals Program, helping elementary and middle school students from different towns, states, regions and countries connect and learn from each other about the importance of water. WCCPS products, such as bookmarks and activity booklets were distributed in classrooms to help students learn to use water wisely.

The annual Community Resources tour for teachers once again brought 40 educators to the Green River Watershed in June to learn about the source of Tacoma's drinking water and to share the information with their students.

Tacoma Water's Water Conservation Program typically educates the public at large, as well as master gardeners and landscape professionals about resource-efficient landscaping with every piece of landscape-related literature it sends out. Approximately 2,000 informational packets were mailed out in 2003. Resource-efficient landscaping includes benefits beyond water conservation including:

- Reduction of turf and expansion of planted/mulched areas (= less lawn chemicals used).
- Soil enhancements using composted materials and mulches (= less soil erosion into storm drains).

- Use of plants appropriate in the habitats in which they are planted; suggested far more than use of adapted or native plants (also known as "Right Plant/Right Place; = less water and chemicals applied to plants).
- Use of slow-release organic fertilizers so that the soil feeds the plants, not the quick release chemical (= less use of toxic chemicals; secondary result is that plants are healthier in general due to better soil structure and water holding).
- Use of Integrated Pest Management Practices vs. calendar-based chemical programs (= less use of chemicals because person often resolves the real problem before treating the symptom in a reactionary mode).

The environmental group, Citizens for a Healthy Bay, also provides education to the public on water quality issues and concerns. In 2003 they sponsored six training events and trained 84 people. They also educated 200 boaters about safe boating practices. Through speaking engagements to a wide variety of groups, they reached 1,042 people in the community. They also sponsored a Jr. Bay Rangers Program, funded by the City's "Make a Splash" Grant Program that educated 175 children about water quality.

### **S12 Thea Foss Waterway Basin Program**

The City's NPDES Municipal Stormwater Permit, issued in 1995, contained a special provision requiring the development of a stormwater program specific to the Thea Foss Waterway. Much of the work to establish the program was done in 1995 and early 1996, prior to this reporting period.

Source control activities conducted within the Thea Foss Waterway Basin during 2003 are documented in the Quarterly Source Control Reports submitted to Ecology and EPA. In 2003, source control efforts within the Thea Foss Waterway Sub-watershed continued to focus on outstanding issues and concerns. A detailed list of ongoing issues and concerns has been compiled by the Stormwater Source Control Workgroup, consisting of representatives from the City of Tacoma, the Department of Ecology (Ecology), the U.S. Environmental Protection Agency (EPA), the Thea Foss Participants' Group, the University of Washington - Tacoma and Citizens for a Healthy Bay. The work group meets quarterly to cooperatively discuss and provide status updates on each action item.

### **STORMWATER WORKPLAN ADDENDUM**

The Thea Foss/ Wheeler-Osgood Waterways Stormwater Workplan Addendum is attached to the Remedial Action Consent Decree signed in October 2002 with the U.S. Environmental Protection Agency (EPA). This was a major staff focus. The City of Tacoma is the first municipality to do this type of work, and is breaking new ground while serving as a model for other Superfund sites. This workplan addendum outlines the various activities that the City is performing to prevent recontamination of the receiving water sediments within the Thea Foss and Wheeler-Osgood Waterways. A schedule for these activities is also included. The document includes a description of ongoing stormwater monitoring efforts, studies, source control efforts and BMP assessments, as well as an approach to future stormwater source control decision-making. Specific activities outlined in the document and their current status are as follows:

- Phthalate Source Study for Thea Foss and Wheeler-Osgood Waterways - The Phase I final report was sent to EPA in November 2002. The BEP Phase I Study was to evaluate business types/land uses versus BEP levels found in area CB sediment. Two samples were taken at a number of selected locations: One from



an on-site CB and the other from a CB in the right of way nearest the site. Phthalate Source Study Phase II will look at specific products. The City of Tacoma, Seattle Public Utilities, and King County DNR outlined a participation plan for the Phase II sampling in an effort to increase the robustness of the study. The participation plan was submitted to EPA on September 26, 2003. Sampling and analysis is in progress and nearing completion. The City of Tacoma Laboratory has agreed to perform the analysis on the solid matrixes and Metro/King County Laboratory has agreed to analyze the liquid matrixes.

- Total and Dissolved Constituents in Stormwater for Thea Foss and Wheeler-Osgood Waterways (pending).
- WSDOT/UW and other Stormwater Technology Studies - In 2003, several storm samples were collected on one treatment technology at the WSDOT Ship Canal facility. The City is currently working on a scope of work to continue and expand the stormwater technology study at this facility.
- Source Control Program - Quarterly and Annual Source Control Summary Reports are submitted to EPA and Ecology under this program. The 2002 Annual Source Control Report was submitted to EPA in April 2003 and it included an updated Source Control Workplan. Prior to submitting the report to EPA, the City of Tacoma presented the data and conclusions of the 2002 report to the Foss Source Control Group on March 6, 2003. Comments and recommendations from the group were incorporated into the 2002 Annual Report. The conclusions and recommended actions from the report are listed in Section 7, Identification of Known Water Quality Improvements or Degradation.
- NPDES Stormwater Monitoring for Thea Foss and Wheeler-Osgood Waterways - The NPDES Stormwater Monitoring for Thea Foss and Wheeler-Osgood Waterways is conducted under an Administrative Water Quality Order No. DE 01WQH-Q-3241 issued by Washington State Department of Ecology on September 13, 2002.

#### **WATER QUALITY ORDER FOR NPDES STORMWATER MONITORING**

During 2002 and 2003, the City continued Year 2 and Year 3 of the NPDES Stormwater Monitoring Sampling and Analysis Program. Under the program, seven outfalls discharging to the waterway are to be monitored for five years. Ten storm samples and four base flow samples are to be collected at each outfall per year. In addition, sediment trap samples at each of the outfalls are to be collected every fall/winter of each year. The resulting data was summarized and evaluated in an annual report. Year 1 of the sampling program started in late August 2001. The first annual report was completed in December 2002 for the first sampling period of September 2001 through August 2002. EPA and Ecology comments on the draft report were incorporated into the Year 1 report and resubmitted July 24, 2003. A submittal date for the final Year 1 - August 2001-2002 Annual Report has not been set by Ecology and is dependent on Ecology's and EPA's review of the July 24 submittal.

The Year 2 sediment trap bottles were collected, processed, and frozen while the City developed the method for the new extraction system. The City has proposed the use of an accelerated solvent extraction (ASE) system and needs to provide performance-based assurances to Ecology before work can proceed. The City has submitted to Ecology an Initial Demonstration of Capability (IDC) package and is waiting for comments to proceed. A data review meeting with Ecology was on for January 8, 2004. Based on anticipated results from this meeting, the sediment trap Year 2 samples should

be analyzed in Quarter 1, 2004. When analysis is complete and all issues from the January 8 meeting are resolved, the City will prepare the Year 2 Stormwater Monitoring Report. This type of monitoring is very labor intensive.



Night Monitoring

### **INSPECTIONS**

In 2003, stormwater specific inspections were conducted at businesses within the Thea Foss Sub-watershed and other watersheds. Most of the inspections were performed to evaluate compliance status at businesses where concerns were previously noted. Inspections of ponds and municipal stormwater facilities were also started. The very detailed Source Control Quarterly Reports contain summaries of the Foss Basin inspection activities and are available for review.

Several City-owned facilities located in the Thea Foss Sub-watershed were inspected during 2003. The facilities included the Asphalt Plant, Tacoma Dome, Convention Center and the Sign Shop. The inspections were performed in the same fashion as those of private business/industry. Refer to Section S7B8b Existing Residential and Commercial Development Run-off for more information about the inspection of City-owned facilities.

### **EDUCATION**

The City continues to provide residents and businesses with educational handouts and pamphlets pertaining to BMPs. Residential letters and pamphlets are distributed in neighborhoods following complaint investigations. During inspections, businesses are provided both general and specific BMPs targeting applicable activities. Staff participated in the Fest (formerly Maritime Fest), a festival held on and next to the Thea Foss Waterway.

### **COMMERCIAL AND INDUSTRIAL MONITORING**

A variety of activities were completed with respect to the monitoring of commercial and industrial sites.

The Washington State Department of Transportation (WSDOT) completed a new vector dump facility, along SR 7 at South 38<sup>th</sup> Street during the latter months of 2003. The facility is primarily designed for freeway CB cleaning waste with a discharge to the sanitary sewer after pretreatment.

No problems were found with the old City fill site located near South 35<sup>th</sup> Street and Pacific Avenue, but the health department conducts methane monitoring at the site two times a year.

Oil has been a problem at the abandoned, 1919 era, Northern Pacific Rail Yard (now the Burlington Northern Santa Fe Yard) oil pipeline. This site is located at East D Street and affects Outfalls 243, 245, 248 and 249. Oil/tar reappeared at the MH-394 pom poms after seven months of no oil. We thought our interim action (slip lining) had stopped the release. A TV inspection at low tide in December, found oil now entering at lateral connections. These are located at 62 and 115 feet upstream of MH-394. Prior to the line sealing, oil was entering at 47 and 53 feet upstream of MH-394 at pipe joints. A new intensive effort of investigation and remediation is warranted. A second TV effort to check lateral lines was scheduled for early 2004. Ecology has the lead on this project and the City hopes the project has a high priority. Underground tanks at a local business may also relate to this release.



Oil on Pom Poms

#### **MAJOR CONSTRUCTION PROJECTS**

Many of Tacoma's recent and very large construction projects have taken place in the Thea Foss Watershed and required a lot of work and coordination from the Surface Water Management staff. These big projects include LINK, the light rail system, the Convention Center, Albers Mill, the esplanade along the waterway, facilities for Sound Transit, the Tacoma Art Museum and the ongoing expansion of both the University of Washington - Tacoma campus and the Port of Tacoma.

Major environmental cleanup of the Thea Foss and Wheeler-Osgood Waterways is under way. The City of Tacoma, during the next three years, plans to dredge about 525,000 cubic yards of contaminated sediments - enough to fill more than 38 Museum of Glass cones -- from the waterways to a confined disposal facility in the St. Paul Waterway. As part of the cleanup plan, the City also will build new marinas and marine habitat. As of December 2003, the City of Tacoma had accomplished the following:

- Demolished old marinas in front of Albers Mill, the Museum of Glass and Thea's Landing condominium and apartment building.
- Drove concrete pilings for the new wharf and marinas.
- Began dredging the St. Paul Waterway to build a disposal facility to confine contaminated sediments to be dredged in the fall of 2004 from the Thea Foss and Wheeler-Osgood Waterways.
- Placed clean sediments excavated from the St. Paul Waterway on the Puyallup River Delta to enhance marine habitat.
- Dredged a small amount of contaminated sediments from the Albers Mill Wharf and Marina area, capped the shoreline area and placed a grout mat to stabilize the bank.

The "Utilities" group, which is not part of the City of Tacoma, started their in-water work at the head of the Foss Waterway. EPA is using the Corps of Engineers to inspect the work done by the Utilities group. Waterway pollution events/responses have been coordinated with their contractors. A good working relationship has developed. They even assisted in boom deployment near the large 96-inch outfalls at the head of the Foss Waterway to contain (12-10-03) a diesel spill that happened on I-5 at South 38<sup>th</sup> Street.

#### **SPILLS**

No significant spills reached the Thea Foss Waterway during 2003, although City staff responded to a large number of spill and pollution complaints. Spill and pollution reports are properly reported to the appropriate agency and compiled in the quarterly progress reports. Please refer to Section S7B8b Existing Residential and Commercial Development Run-off for more information on spills and other pollution complaints.

The City contracted with an environmental group, Citizens for a Healthy Bay (CHB), for environmental hotline services. CHB's hotline number (253-383-2429) was operational throughout 2003. Thirty-nine calls were received in 2003. As in 2002, most of the calls were related to petroleum products, soap/detergent/foam and paint. Twenty-seven of the calls addressed problems in the Foss Waterway and almost all of the calls received were from citizens. Twenty-nine of the calls were referred to the City and five were referred to Ecology.

## **2. Notification of Any Recent or Proposed Annexations or Incorporations**

No annexations or incorporations took place in 2003.

## **3. Differences Between Planned and Actual Expenses**

Relating the planned expenditures in each of the above categories to the actual expenditures was still very difficult in 2003. The City's budget and fiscal tracking systems are not structured to fit the NPDES needs. They were developed to comply with the state auditor requirements and conform to the Government Accounting Procedures (GAP). Some activities are budgeted in one activity or organization but are actually spent and therefore charged to a different activity or organization. As a result, the actual expenditure in any one line item does not necessarily relate to the budget number for that same category. Finally, some capital expenditures may be budgeted in the operating budget but the expenditure is taken from the capital budget and vice versa.

The City is developing new accounting software in its Business Improvement System computer system. The system will allow the City to better manage budgets. The system went live in late 2003, but it is still undergoing development. The system should be fully functional for the year 2004 report.

Based on permit negotiations with Ecology, the requirement for financial reporting will not be included in the next NPDES Permit.

## **4. Revisions, if Necessary, to the Remaining Years of the Fiscal Analysis Reported in the Approved Stormwater Management Program**

Revisions to the fiscal analysis section are not necessary.

## **5. For the Fourth Year Report, a Summary and Analysis of the Cumulative Monitoring Data Collected Throughout the Term of the Permit**

The fourth year report was submitted in September 1999.

## **6. A Summary Describing Compliance Activities, Including the Nature and Number of Official Enforcement Actions, Inspections and Types of Public Education Activities**

The Building and Land Use Services Division of Public Works is responsible for the permitting of a wide variety of land use activities throughout the City. They issue residential and commercial building permits, clearing and grading permits, and permits for shorelines, wetlands and other critical areas. They also process all land use permit applications including short plats, formal plats and other activities. During 2003, the following actions were taken:

- Erosion control inspections – 1522
- Grading and filling permits – 47
- BMP failure inspections - 58
- Tracking sediment off-site - 45
- Grading inspections – 40
- Wetland permits – 12
- Wetland inspections – 82
- Wetland enforcement actions - 9

Wetland enforcement actions were counted for those actions that were a complaint, or violation. Although all monitoring, maintenance and follow-up on conditions could be considered a type of enforcement, these enforcement actions do not include permit condition enforcement such as “notice on title” documentation, storm plan review, site visits to verify installation and monitoring plans, etc. Any site visits for these enforcement actions would be reflected in the wetland inspection count.

The Science and Engineering Division staff continued to use a new tracking system in 2003. All complaint calls are now tracked. Please refer to Section S7B8b Existing Residential and Commercial Run-off for more information on this tracking system and the number of complaints received. The water quality types of complaints that were addressed included concerns such as vehicle storage, working on vehicles, washing of buildings, paint waste/wash-up, spills relating to vehicular accidents, business practices related to improper storage of chemicals, and vehicle and equipment washing. For the most part, these types of complaints were taken care of through education of the citizens involved.

The Surface Water staff also responds to erosion and sediment control complaints. Problems ranged from lack of, or improperly installed silt fencing, to tracking of sediments onto City rights-of-way. There were also problems in 2003 associated with discharging turbid water into the stormwater system via direct connections and/or physically pumping water from a low spot to a catch basin or a manhole.

Citizens for a Healthy Bay, a local environmental group, operate a pollution hotline in cooperation with the City. The hotline received 39 calls in 2003 from the public, agencies and agency volunteers. The pollutants most frequently reported were

petroleum products, paint and soap/detergent/foam. The calls were referred to the appropriate agency for action, including 29 to the City and five to Ecology.

The Wastewater Source Control Program had four industries in 2003 that were in significant non-compliance as defined by Federal regulation 40 CFR Part 403 and by the City's wastewater ordinance. They were cited for a variety of code violations.

Staff from the Washington State Department of Ecology also responded to many water quality complaints and concerns within the City during 2003. Often, these cases are referred to City staff for inspection. Some of these sites may have been located in unincorporated areas outside of the City limits of Tacoma, but were tracked as having a Tacoma address. Ecology staff provided the following numbers:

- Spill calls except drug labs – 181
- Spills to water - 141
- City referrals – 68
- Water quality referrals – 50
- Drug labs – 139

## **7. Identification of Known Water Quality Improvements or Degradation**

Charitable groups that sponsored car washes utilized the City's Clean Bay Car Wash Program. The use of the car wash kits prevented a lot of dirty, soapy water from entering our stormwater system. Community groups were also educated through this program about the importance of keeping our water clean.

By the end of 2003, the Tahoma Salt Marsh Project was nearly completed. This project took a vacant piece of shoreline along Ruston Way and through excavation and regrading both riparian and intertidal habitat was created. The shoreline was also enhanced to make it more fish-friendly. Almost 1000 cubic yards of contaminated soil was removed and properly disposed of off-site. The project will be completed by March 2004.

In October 2003, two derelict vessels, the Victoria M and the Cactus, were removed from the City's Olympic View restoration site. The owner relocated one vessel. The other vessel was removed and scuttled by a City contractor. These actions were significant, as the vessels were moored over one of Commencement Bay's valuable and limited eelgrass habitats. With the benefit of the additional sunlight, the eelgrass beds will now be able to spread and grow.



Derelict Vessels

The Washington State Department of Transportation (WSDOT) completed a new vector dump facility, along SR 7 at South 38<sup>th</sup> Street during the latter months of 2003. The facility is primarily designed for freeway CB cleaning waste with a discharge to the sanitary sewer after pretreatment. The previous WSDOT operation was shut down after the City found wastewater entering the storm line that drains to outfall 237 B in the Thea Foss Waterway.

Staff is working with the WSDOT on several improvements to State Route (SR) 16. Negotiations could result in future habitat conservation and wetland mitigation within the Leach Creek drainage area. Further negotiations regarding Snake Lake and the Flett Creek basin will probably result in a retrofit of the inlet to Snake Lake adding a treatment structure as part of the SR16 project. Treated flows will be equivalent to the six-month event, and will encompass 415 acres, which accounts for all of the drainage entering Snake Lake from the north.

#### **Stormwater Quality in Thea Foss Waterway Basin.**

The first year of stormwater and stormwater sediment monitoring has shown success in the City of Tacoma's Source Control Program for Thea Foss Waterway. Base flow and stormwater quality has improved or remained the same since 1986 for most of the chemicals. Stormwater sediments also indicate that stormwater sediment quality has improved or remained the same since 1997 for most chemicals. Future stormwater loads based on 2001-2002 stormwater monitoring indicate a 40-80 percent reduction in current stormwater loads compared to historical loads.

The improvements in stormwater quality indicate that source control efforts in Thea Foss Basin were effective in the reduction of chemicals in stormwater. Current City activities include business inspections, response to spills and illicit discharges, street cleaning and catch basin cleaning operations and pollutant source tracing. As of January 2003, the City adopted a revised Surface Water Management Manual through our updated stormwater ordinance. The ordinance requires stormwater control systems on new and redeveloped sites and provides a mechanism for enforcement of stormwater concerns.

Specific chemicals of concern for the Thea Foss Basin are mercury, PAHs, phthalates, pesticides/PCBs and TPH.

- **Mercury.** The highest median concentrations of mercury were found in Outfall 230 in both base flow and stormwater. The highest concentration of mercury was also detected at the FD-3A sediment trap in Outfall 230 Basin.
- **PAHs.** The outfalls discharging the highest median concentration of PAHs were Outfalls 254, 230 and 237A in both base flow (only 254 and 237A) and stormwater. In the sediment trap sediments, the highest concentrations of PAHs were found at Outfall 230 followed by Outfalls 237A and 245. Currently, there are several ongoing investigations for PAHs in Outfalls 245 and 237A.
- **Phthalates.** In whole-water, the highest concentrations of bis(2-ethylhexyl)phthalate were found in Outfalls 230 and 235. In sediment traps, the highest concentrations of bis(2-ethylhexyl)phthalate were found in Outfalls 230, 243 and 245.
- **Pesticides and PCBs.** In accordance with the sampling plan, pesticides and PCBs were not tested because they are not detected at the reporting limits for

whole-water. In the sediment trap sediments, the highest concentrations of DDT and PCBs were found at FD-3A in Basin 230. In August 2002, sediment traps were redeployed at “hot spot” locations in Basin 230 for PCB source tracing.

- **TPH.** In the sediment trap sediments, the highest concentrations of heavy oil and diesel were found at MH390 in Outfall 245, Outfalls 230 (heavy oil only) and 243. The possible sources of heavy oil and diesel to Outfalls 245 and 243 could be truck traffic, the old NPRY oil line, heavy oil tanks and/or old gas lines (see PAHs).

With continued monitoring, the City believes we may see further improvements in stormwater quality with the additional controls implemented in 2002/2003 including:

- Removal of the coal tar seepage from the DA1-line in Outfall 237A.
- Replacement of the collapsed storm drainpipe on Hood Street.
- Slip-lining of the storm drain line to Outfall 245 thus removing the “oil-snakes” conduit.
- Increase in the number of business inspections per year.

The City recommends the following source control activities:

**Priority 1 tasks** were:

- Outfall 245 BEP investigation with Ecology.
- Outfall 245 monitoring for “oil snakes” downstream of the slip line on South 19th Street.
- Outfall 245 “D” Street investigation by Ecology.

**Other Priority 1 tasks** included:

- Hired one source control inspector in 2003.
- The Mercury Education Program (sanitary source control lead).
- Implemented the City’s Surface Water Management Manual dated January 2003.
- Inspected 300 businesses in Tacoma and documented the inspections using the new business inspections database.
- Respond and track all complaints in complaints database.
- Continue NPDES Stormwater Monitoring Year 2 and Year 3.
- Phase II of the Phthalate Source Study testing products, materials and waste.
- Participation in the WSDOT/UW Stormwater Technology Study.
- Participation in Ecology’s Technical Review Committee for Stormwater Treatment Technologies.

**Priority 2 and 3 tasks** were:

- Outfall 254 PAHs source tracing including business inspections.
- Outfall 235, continue support of Ecology lead investigations.

Please refer to the Foss Waterway Source Control Quarterly Reports described under Section S12 Thea Foss Waterway Basin Program for additional information about water quality improvements.



**8. Status of Watershed-wide Coordination and Activities which the Permittee has Undertaken Individually or Jointly as Part of the Special Condition S7B7.**

Please refer to Section S7B7 for information on watershed-wide coordination and activities.